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The Equity Premium Consensus Forecast Revisited

By

Ivo Welch

September 2001

COWLES FOUNDATION DISCUSSION PAPER NO. 1325



COWLES FOUNDATION FOR RESEARCH IN ECONOMICS

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The Equity Premium Consensus Forecast Revisited*

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JEL Code: G00, G10, G12, F47.

September 8, 2001

Abstract

This paper presents the results of a survey of 510 finance and economics professors. The consensus forecast for the 1-year equity premium is about 3% to 3.5%, the consensus forecast for the 30-year equity premium (arithmetic) is about 5% to 5.5%. The consensus 30-year stock market forecast is about 10%. These forecasts are considerably lower than those taken just 3 years ago.

*I thank Hersh Shefrin for feedback.

1 Introduction

Welch (2000) presents the results of a survey of 226 finance professors regarding their views about the equity premium. Survey responses were collected beginning October 1997 and ending in late 1998. Since then, the stock market has sputtered. The level of the S&P500 is just about the same today as it was when this survey was taken. In addition, since 1998, some equity-premium related academic work has appeared which may have influenced the academic consensus. Foremost, there is the paper by Fama and French (2001) and the book by Shiller (2000). In addition, the Welch (2000) survey may in itself also have influenced academic opinions: in the original survey, respondents believed the profession's equity premium consensus was higher than it actually was. Thus, the publication of this first survey may have "encouraged" professors to have become more pessimistic in their assessments.¹

Consequently, our current paper revisits the opinions of the finance and economics profession with regard to their expected stock market performance as of August 2001. The current survey received responses from 510 finance and economics professors, perhaps because it was also significantly shorter than the original survey.²

2 The Survey

Insert Table 1 here

The new survey is reproduced in Table 1. It was posted on my personal web server as <http://welch.som.yale.edu/equpdate.html>, but only accessible to individuals contacted by email. The email itself was sent to about 3,000 email entries in the *econ directory service* at <http://welch.som.yale.edu/econdir/>, and 597 responses were received. Of these,

¹Two equity premium related working papers that survey other populations can be found in Fisher and Statman (2001) and Graham and Harvey (2001).

²Relative to *The Journal of Business* survey, the current survey omits questions related to other issues of academic interest, such as the applicability of the CAPM.

510 respondents identified themselves as finance or economics professors. The remaining 87 responses have been excluded from our analysis.³

Some users' frustration with strict range and type checking in the previous survey led me to allow any answers without electronic type and range checking at survey submission time. The drawback of this lax approach is that I had to "clean up" about 20 responses afterwards. The clean up was fairly uncontroversial. A typical case involved an individual offering a 30-year expected equity premium of 8% and an expected stock market return of 1111%. (This was changed into 11%.) Still, there were two or three extreme outliers (at least two orders of magnitude) that could not be classified. These observations were eliminated. The reported results do not check for consistency of answers (e.g., requiring an equity premium below a stock market return). However, the survey results are robust to the exclusion of these observations, too.

The survey was not anonymous, but no checking was performed at submission time on whether an email address was indeed supplied. Of 510 respondents, 477 respondents provided their email address. 33 respondents remained anonymous. A casual browsing of email addresses reveals that many famous economists were willing to participate.

³Their 1-year mean (median) was 2.6% (3%); their 30-year mean (median) was 5.0% (4.5%); and their 30-year geometric stock market forecast was 8.8% (9%). Thus, their answers were roughly in line with those of our finance and economics professors.

3 The Forecasts

3.1 Equity Premia Numerical Forecasts

Insert Table 2 here

Economists' expectations in the 2001 survey are considerably more pessimistic than they were in the 1998 survey. Table 2 shows that the one-year equity premium forecast median is now 3.0%, the mean is 3.4%. The interquartile range is from 2% to 5%. 30 participants indicated a negative expected equity premium over the 1-year horizon. (Noone expects a negative premium over long horizons.) These new survey results are lower than *The Journal of Business* results, which had a 5.8% mean and 6% median in the 1998 survey.

The arithmetic 30-year equity premium forecast median and means are 5% and 5.5%, or about 200 basis points above the 1-year equity premium forecast. The interquartile range is 4% to 7%. This compares to a 7.1% mean and 7% median in the 1998 survey.

The geometric 30-year equity premium forecast is about 50 basis points below the arithmetic equity premium forecast. Finally, the 30-year geometric stock market forecast mean is 9.1%, with a median of 9% and an interquartile range of 8% to 10.5%. One can infer that participants believe the *arithmetic* stock market average return to lie around 10%. This indicates an average forecast of the risk-free rate of about 5%.

3.2 Sentiment Changes

Insert Table 3 here

Participants were asked whether they are more bullish or bearish today than 2 to 3 years ago. Table 3 details their forecasts. 154 participants consider themselves more bearish today. Their forecasts are between 0 and 50 basis points below the forecasts of all survey participants. The 214 unwavering participants are similar to the average overall participants. Only 58 participants declare themselves more bullish today. Their forecasts are considerably higher than those of the more bearish investors. Their 1-year forecasts are about 200 basis points higher than their bearish counterparts. Perhaps even more remarkable, their 30-year forecasts are about 100 basis points higher.

3.3 Probability Mass

Participants were also asked whether they preferred the bet that the S&P500 will exceed 1,300 on December 31, 2002 or the bet that the the S&P500 will be below 1,300 on December 31, 2002. Because the S&P500 ranged from about 1,150 to 1,200 in August, this corresponded to a return range of about 8% to 13% (excluding dividends).

214 participants preferred to bet on the S&P500, henceforth called “optimistic.” The mean (median) 1-year equity premium estimate of the optimistic betters was 4.9% (5.0%). 150 participants preferred to bet against the S&P500, henceforth called “pessimistic.” Their mean (median) 1-year equity premium forecast was only 1.9% (2%). 94 participants considered it a fair bet, and 48 refused to take sides.

When asked for what they considered to be the fair median forecast, the median quoted level for a fair bet about the S&P500 for December 31, 2002, was 1,285 with an interquartile range of 1,240 to 1,360.⁴ The median 1-year equity premium estimate of the pessimistic betters was 2%; the median 1-year equity premium estimate of the optimistic betters was 5%.

A similar bet with an implied stock market return of about 9% over a 30-year period (whether the S&P500 would reach 20,000 by December 31, 2030) was greeted less enthusiastically. 220 respondents prefer the pessimistic side, and only 168 respondents preferred the optimistic side.

This is a mildly curious pattern: when asked for numerical estimates, respondents appear less optimistic on shorter horizons than longer horizons. When asked for whether the index will hit a certain level (1,300 on short horizon; 20,000 on long horizon), respondents appear more optimistic on a shorter horizon than on a longer horizon. It is not irrational, though: if participants believe in a small probability of very high returns over 30 years, the mean forecast will look more optimistic than an “above/below” probability forecast.

For the most part, participants chose fairly sensible answers: their betting levels were not wholly inconsistent with their percentage forecasts.

⁴A single 5,000 outlier prevents me from quoting the mean. The interquartile range was from 1,240 to 1,360.

3.4 Comparison with *The Journal of Business* 2000 Survey

Insert Table 4 here

Table 4 shows that 122 respondents indicated that they had participated in the original *Journal of Business* survey. Among these, the 1-year arithmetic forecast mean was 3.75%, the median was 4%, and the interquartile range was 2% to 5.5%. This is still considerably lower than the 5.8% mean (6% median) reported in *The Journal of Business* survey.

Similarly, their 30-year arithmetic equity premium forecast is 5.5% (median 5%; interquartile range 4% to 7%), compared to about 7% mean/median in *The Journal of Business* survey. Their 30-year geometric equity premium forecast is 5.5% (median 5%; interquartile range 4% to 7%). And their 30-year stock market forecast is about 8.8% (median 9.0%; interquartile range 7.5% to 10%).

Among these participants, 15 respondents claim to be more bullish today than they were in the original survey. 76 respondents claim to be equally bullish. 30 respondents claim to be less bullish. *The Journal of Business* survey asked respondents whether a bull market on average lowers or increases their forecast of the equity premium. Respondents indicated that, on average, a bull market would lower their equity premium forecast. This is in contrast with the observed findings: It appears as if the recent bear market correlates with lower equity premium forecasts, not higher equity premium forecasts.

3.5 Care of Thought and Clarity of Questions

Insert Table 5 here

Table 5 shows that 188 respondents considered themselves to be less qualified than the average economist to answer the questions of the survey. Their 1-year forecast equity premium forecast of 3% was more pessimistic than that of economists that considered themselves to be experts in the area. Among these 72 economists claiming better than average expertise, the 1-year mean was 4.2%, although their median was only 3%, too. The *experts'* longer-term estimates were about 30 to 150 basis points higher than the *amateurs*.

385 participants considered the survey to be very clear, 94 participants considered it to be unclear. Only 21 participants did not consider the survey to be unclear, but their average forecasts were in line with those of participants who considered this survey to be clear.

4 Summary

The equity premium consensus forecast of finance and economics professors seems to have dropped during the last 2 to 3 years, a period with low realized equity premia. It now stands at about 3% to 3.5% over a 1-year horizon and at about 5% to 5.5% (arithmetic) over 30 years.

A References

- Graham, John R., and Campbell R. Harvey. “Expectations of Equity Risk Premia, Volatility, and Asymmetry from a Corporate Finance Perspective.” Working Paper, Fuqua School of Business at Duke University, August 2001.
- Fama, Eugene F., and Kenneth R. French. “The Equity Premium.” Working Paper, University of Chicago, April 2001.
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- Shiller, Robert. “Irrational Exuberance.” Princeton University Press, 2000.
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Table 1: The Survey

Updated Equity Premium Survey, Ivo Welch

<http://welch.som.yale.edu/equupdate.html>

Ivo Welch, Yale/SOM
August 2001

Intent: Your answers to this survey will be used in a short paper to update my [Journal of Business](#) equity premium survey from 3 years ago. Your answers will be held strictly confidential. If you have difficulties filling out this survey, please send an email to [Ivo Welch](#).

Background Information: The S&P500 has been hovering between 1,200 and 1,300 in July 2001. As of August 8, the S&P500 was 1,200. As of August 8, T-bills are about 3.5%/year; they yielded about 6% a year ago. As of August 8, Long-term T-Bonds yield about 5.5%/year.

My email address is:

I am a finance or economics professor:

☒ Yes. ☐ No.

I participated in Ivo Welch's previous equity premium survey in 1998/1999:

☒ Yes. ☐ No.

Relative to my views 2-3 years ago, my views about the stock market's long-term performance are today:

☒ more bullish; ☐ more bearish; ☐ same.

I expect the average equity premium (i.e., expected return on the market net of the short-term interest rates) over the next 1 year to be

percent per year.

I expect the average arithmetic equity premium (relative to short-term T-Bills) over the next 30 years to be

percent per year.

I expect the average geometric equity premium (relative to short-term T-Bills) over the next 30 years to be

percent per year.

I expect the average nominal geometric stock return (not premium!) over the next 30 to be

percent per year.

Forced to bet, which side would you prefer being on:
for the S&P500 on December 31, 2002.

- ☒ win if > 1,300. lose if < 1,300.
☐ win if < 1,300. lose if > 1,300.
☐ either; this is fair bet
☐ I never bet

If not 1,300, what would be the fair level for an over-/under bet on the S&P500 for December 31, 2002?

Forced to bet, which side would you prefer being on:
for the S&P500 on December 31, 2030.

- ☒ win if > 20,000. lose if < 20,000.
☐ win if < 20,000. lose if > 20,000.
☐ either; this is fair bet
☐ I never bet

Although these are difficult questions, relative to other financial economists, I would guess that I have thought about these questions and/or the best answers to these questions [☒] more carefully; [☐] less carefully; [☐] equally carefully.

Were the questions in this survey clear? ☒ Very Clear; ☐ Muddy; ☐ Unclear; ☐ Very Unclear;

Submit My Survey Answers

Clear All My Wrong Survey Answers

Table 2: Consensus Forecasts of Finance and Economics Professors as of August 2001, in Percent

Forecast	Mean	Standard Deviation	Responses			Percentiles				
			Neg	Zero	Pos	Min	Q1	Med	Q3	Max
1 year Equity Premium Forecast	3.4	(3.9)	30	55	411	-30	2	3	5	25
30 year Equity Premium Forecast (Arithmetic)	5.5	(2.7)	0	4	472	0	4	5	7	25
30 year Equity Premium Forecast (Geometric)	4.7	(2.2)	0	4	445	0	3	4.5	6	20
30 year Stock Market Forecast (Geometric)	9.1	(2.6)	0	1	465	0	8	9	10.5	25

Table 3: Cross Table of Sentiment Changes against Forecasts, in Percent

2-3 Year Sentiment Change	Statistic	<u>Equity Premium</u>			<u>Stock Market</u>
		1-Year	30-Year Ari	30-Year Geo	30-Year Geo
154 More Bearish	Mean	2.7	5.0	4.3	8.8
	Median	3	5	4	9
	IQ Range	1-4	3.5-6	3-5.5	7.5-10
214 Neither	Mean	3.5	5.6	4.7	9.1
	Median	4	5	4.7	9
	IQ Range	1-6	4-7	3-6	7.5-11
58 More Bullish	Mean	4.6	6.0	5.3	9.8
	Median	4.75	6	5	9
	IQ Range	3-6	4-7	4-6	8-11

Table 4: Cross Table of Participation in *Journal of Business* Survey against Forecasts, in Percent

Earlier Participation	Statistic	<u>Equity Premium</u>		<u>Stock Market</u>	
		1-Year	30-Year Ari	30-Year Geo	30-Year Geo
122 yes	Mean	3.75	5.5	4.5	8.8
	Median	4	5	4	9
	IQ Range	2-5.5	4-7	3-6	7.5-10
371 no	Mean	3.39	5.53	4.83	9.22
	Median	3	5	4.7	9
	IQ Range	1-5	4-7	3-6	8-11

Table 5: Cross Table of Claimed Expertise against Forecasts, in Percent

Relative Expertise	Statistic	<u>Equity Premium</u>			<u>Stock Market</u>
		1-Year	30-Year Ari	30-Year Geo	30-Year Geo
188 Less	Mean	3.1	4.9	4.4	8.5
	Median	3	5	4	8
	IQ Range	1-5	3-6	2-5.5	6-10
235 Equal	Mean	3.4	5.8	4.8	9.2
	Median	4	5	4	9
	IQ Range	2-5	3.5-7	3-6	7.5-10
72 More	Mean	4.2	6.2	5.4	10.1
	Median	3	5.4	5	9
	IQ Range	1-6.5	4-7.5	3.4-6	8-11